

## **CYTOLOGIC DIAGNOSIS OF THE COLUMNAR CELL VARIANT OF PAPILLARY THYROID CARCINOMA**

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**Background/Purpose:** Columnar cell variant is a clinically aggressive form of papillary thyroid carcinoma (PTC) which remains diagnostically challenging to many cytopathologists. Recently, it has been found that up to 55% of these tumors are positive for CDX2 by immunohistochemistry. We describe here a confirmed case of columnar cell papillary thyroid carcinoma with preceding fine needle aspiration (FNA). The tumor was positive for CDX2 in the final surgical pathology resection.

**Methods:** The patient was a 53 year old female who presented with a multinodular thyroid. She underwent FNA of a dominant 4.2 cm nodule, which was reported as “epithelial carcinoma.” A total thyroidectomy was subsequently performed.

**Results:** FNA smears showed papillary architecture and crowded overlapping cells. Nuclei were oval and monomorphic, but lacked classic features of PTC, such as clear chromatin and pseudoinclusions. An immunocytochemical stain for TTF-1 was positive. The surgical specimen demonstrated a well-circumscribed neoplasm with predominantly trabecular architecture and cells with columnar nuclei and granular chromatin. Mitotic activity was low and no necrosis or vascular invasion were present. An immunohistochemical stain for CDX2 was positive.

**Discussion & Conclusion:** Columnar cell variant of papillary thyroid carcinoma is often unrecognized in cytopathologic preparations. The discovery that columnar cell PTC frequently stains positively for CDX2 has aided in its diagnosis on tissue sections. This case demonstrated the ability of CDX2 staining to assist with the correct diagnosis. Cytopathologists should be aware of the unique morphologic features of columnar cell variant of PTC.